



# COALBED METHANE EXTRA

A publication of the Coalbed Methane Outreach Program (CMOP)

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## Coal Mine Methane Ownership Issues

**A**s interest in unconventional energy resources and greenhouse gas emissions increases, recovery and utilization of coal mine methane (CMM) is expanding. In the U.S. and many other countries, however, industry lacks a uniform legal framework governing CMM ownership. As a result, a number of ownership conditions can serve as barriers to project development. The question of who "owns" or has rights to the methane adsorbed to a particular coal estate does not have a straightforward answer. In most cases, a coal lease holder does not have automatic rights to CMM and must work with the gas lease holder, the surface owner, the government, or a combination of the three to resolve the issue.

see CMM OWNERSHIP, page 2

## NEWS: Power Plant Uses Ventilation Air as Fuel

**I**n Australia, the first power plant in the world using coal mine ventilation air methane (VAM) as the primary fuel is in full operation at the West Cliff Colliery of BHP Billiton. Use of this extremely lean fuel is made possible by a patented combination of emission control and steam cycle technologies. The solution is developed by MEGTEC Systems, owned by U.S.-based company SEQUA Corp. The plant, which converts the energy of coal mine VAM into electricity, officially opened on September 14. For additional information, please view the official press release at <http://bhpbilliton.com/bb/investorsMedia/news/2007/nswPremierMorrislemmaOpensWorldfirstPower-GenerationProjectAtBhpBillitonsWestCliffMine.jsp>

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## U.S. Coal Mine Methane Conference

### On-Site Registration Still Available

**T**he 1<sup>st</sup> Annual U.S. Coal Mine Methane Conference will be held in St. Louis, Missouri, September 25-27. The 2007 Conference will feature experts on methane gas recovery from both government and industry sharing the latest in technology, methods, and legal issues of CMM recovery through project-based examples and case studies. The theme of this year's event is Innovative Developments in CMM Project Opportunities in the U.S. and around the world.

The agenda is posted on the conference website ([http://www.epa.gov/cmop/cmm\\_conference.html](http://www.epa.gov/cmop/cmm_conference.html)). Day one will cover case studies of U.S. projects and technologies. Day two will focus on international case studies, policy, regulatory, and finance Issues. The third day is reserved for field visits.

**\*\*ONLINE REGISTRATION WILL CLOSE AT 5 PM (EST) ON WEDNESDAY SEPTEMBER 19<sup>th</sup>\*\*** After this time, registration will be available on-site. If you have any questions, please contact Jim Marshall ([jmarshall@ravenridge.com](mailto:jmarshall@ravenridge.com)) at 970-256-2654.

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## Methane to Markets

### M2M Expo Registration is Live



The Registration page for the Methane to Markets Partnership Expo is live. To register for the event, you can visit the M2M website ([www.methanetomarkets.org/expo](http://www.methanetomarkets.org/expo)), click on the registration link in the side bar, and enter your information as directed.

In addition, several other Expo pages have been updated. First, the Location and Travel Info page now includes more information and assistance to secure a Chinese travel visa. Second, the Accommodations page offers access to a hotel reservation form for Expo attendees to make arrangements at the China World hotel. Third, full exhibitor and sponsorship information, including an exhibitor kit and exhibitor floor plan, is available on the Sponsors page. Fourth, a detailed draft agenda for the Expo is now available for download.

The Partnership Expo, which will take place October 30 to November 1, 2007 in Beijing, China, is the premier international forum for promoting methane recovery and use project opportunities and technologies. Join the international methane community and:

- Showcase project opportunities and technologies;
- Meet with potential project partners and financiers;
- Learn about the latest technologies and services; and
- Explore key technical, policy, and financial issues

For information about becoming a Sponsor of the Expo, please visit <http://www.methanetomarkets.org/expo/sponsors.htm>  
For more information about the Partnership, please visit [www.epa.gov/methanetomarkets](http://www.epa.gov/methanetomarkets).

### CMM Ownership from page 1

This article summarizes the CMM ownership conditions in the U.S. and the obstacles they present for project development. The first section discusses CMM resources and rights on lands controlled by the U.S. Government – the case in several western states. The second section reviews the situation on private lands – such as in much of the eastern U.S. – where ownership of the mineral resources is governed by state laws. Each of the two sections analyzes the ownership procedures and rules that govern both the relationship between the surface and subsurface owners and the relationship between two or more subsurface resource owners.

#### Federal Lands and the Split Estate

When most of the western U.S. was being settled, the 1909 and 1910 Coal Acts were passed requiring homesteads to accept federal government reservations of any underlying coal estate, including rights to enter and develop it. Soon after, the 1914 Mineral Lands Act reserved the oil and gas estate as well as several other mineral estates for the federal government. As a result, today the U.S. Bureau of Land Management (BLM) manages 700 million acres of subsurface mineral estate.

#### Multiple Subsurface Resources

The coal and mineral acts were followed by the Mineral Leasing Act of 1920 (MLA), which clarified that federally-owned coalbed methane (CBM) is developed under an oil and gas lease – not a coal lease. As a result, today a developer on federal lands must hold a gas lease in order to put a CBM or CMM resource to beneficial use. If a company holding a coal lease wants to utilize its CMM emissions, for example, it must follow the federal leasing procedures in place for conventional natural gas as prescribed by the BLM. These procedures involve nominating the area of interest for lease and then following competitive leasing procedures. The gas resource is leased to the highest bidder that agrees to the conditions of the tender.

Generally, utilization and/or sales of CMM requires a valid gas lease, regardless of end use. If the leased gas is used by the mine or mine company, used for power production, or sold to another party, gas royalties must be paid to the BLM. If no lease is held for the gas, it may only be vented to the atmosphere for safety purposes as set out by the Mine Safety and Health Administration (MSHA). The federal government has waived the gas lease and royalty requirements in the past if it deems the use of CMM as beneficial to the government. For example, utilization of



CMM to fuel a coal drying system will increase the value of the coal, thus increasing the royalty the government may obtain from coal sales. This use would be considered a benefit to the government and could be negotiated without a gas lease in place. Any uses not considered a benefit to the government are prohibited in the absence of a gas lease supplementary to the coal lease.

A split estate arises in the event that gas rights are leased to an entity other than the mining company. When this happens, situation-specific arrangements have to be made in order to accommodate both lessees. In the case of a mine in New Mexico, CBM operators were awarded gas leases in the same coal seam that a coal operator is now mining underground. Therefore, the CBM operators have the right to produce the gas released by mining. This arrangement can result in problematic – even prohibitive – conflicts. In the case of this mine, a private agreement between the coal and CBM operators has been made to accommodate both parties.

Some attempts at clarification have been made by BLM in areas where ownership conflicts frequently arise. One such example is the establishment of the Conflict Administration Zone (CAZ) in the Powder River Basin (PRB) in Wyoming and Montana. In 2000, BLM drafted Memorandum 2000-081 setting out policy goals to deal with the conflicts frequently occurring between the large surface mines in the area and the CBM operators. In 2003, BLM issued a second memo (Memorandum 2003-053) to establish CAZs and to optimize the production of both coal and CBM on federal lands by reducing methane liberation during surface mining. The CAZ typically covers areas in the PRB that BLM considers vulnerable to conflict between CBM and coal development. The CAZ includes areas west of existing surface coal mines where coal will be mined within the next 10 years and where CBM development is underway or anticipated. Each CAZ is reviewed annually to adjust its boundary.

Once the CAZ is identified, the CBM lessees or operators are notified that their oil and gas lease is within the

CAZ and informed of future mining activities. BLM requires the proper and timely development of leased resources, the prevention of waste, and proper abandonment of wells. BLM may offer a royalty rate reduction to oil and gas lessees and allow wells to be drilled on smaller acre centers to facilitate uninterrupted coal mining operations.

To qualify for a royalty rate reduction the oil and gas lessee must agree to the following:

- ▶ Expedite CBM production in a manner that will maximize the recovery of the resource before required abandonment; and
- ▶ Cease production operations and abandon wells and facilities at BLM's request prior to the commencement of mining operations in the area of the CBM wells.

Another attempt to maximize utilization of federal minerals is currently underway in the North Fork of the Gunnison River Valley in Western Colorado where federally owned coal and gas is managed by BLM and the federally owned surface is managed by the United States Forest Service (USFS). BLM established the Paonia-Somerset Known Recoverable Coal Resource Area (KRCRA). Within the KRCRA, coal and oil and gas leasing is managed consistent with land use plans and lease terms with exceptions as follows:

- ▶ Where the overburden above the B-Seam of the Mesa Verde coals is less than 3,500 feet, the resources will be managed primarily for the exploration and development of the coal resource.
- ▶ Under no circumstances will the BLM approve any oil and gas operations that compromise maximum economic coal recovery or the safety of underground mining operations.

#### *Surface / Subsurface*

Depending on the specific location of a coal estate, the overlying surface estate can be controlled by BLM, USFS, private land owners, state land owners, or another

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Federal agency. When the surface rights and subsurface rights are owned by different parties, it results in a different sort of a split estate situation. According to BLM, "mineral rights are considered to be the dominant estate, or take precedence over, other rights associated with the property, including those associated with owning the surface. However, the mineral owner must show due regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate." (BLM, nd). MLA protects surface owners in the case of a surface and mineral split estate; the "miner" must compensate the surface owner for damages while the surface owner must provide the mineral lessee the right to enter and use the surface of leased lands (McBride, 2006).

Additionally, if industry expresses interest in a gas lease on lands where the surface is managed by another agency, such as the USFS, BLM is required to obtain approval and recommendations from that surface managing agency (SMA) prior to placing the lands on a competitive lease sale notice. An SMA may need to prepare or update an environmental document, which may require additional time. An agency such as the USFS will consider issues such as habitat, endangered species, and effects on water resources on the lease.

### Private Lands

When the western U.S. was being homestead, the eastern U.S. was already under private ownership. As disputes between coal, gas, and surface owners developed, various state laws were established to govern CMM and CBM ownership. In 1992, the Energy Policy Act pressured states to resolve legal uncertainties over CBM ownership and rights to develop. Where possible, common law rules are generally followed. Today, when interpreting deeds, contracts, and leases, the goal is to implement the intentions of the parties, using evidence where necessary. When split estate property is involved, a number of issues must be considered to accommodate all parties. One consideration is whether the activities of either the surface or various mineral estates cause reasonable or unreasonable interference for the other estate(s) and if such activities are necessary or incidental.

### Multiple Subsurface Resources

Case law resolution is required where the deed or lease is silent on key issues concerning allocation of multiple subsurface resources. For example, in the Wyoming Supreme Court case *Newman v. RAG Wyoming Land Co.*

the value associated with the production of CBM was unknown to the parties in 1974 when the coal deed was signed. As a result, the parties had no intent at all with regard to CBM. The court determined that the right to ventilate gas, which is an essential element of the right to mine, is not equivalent to ownership (Heiss, 2002). For the CBM to have been granted in the deed, the court stated that the mineral must be one that "may be mined or extracted in association" with the coal or "in conjunction with coal mining operations" (Ibid). This case looked to the U.S. Supreme Court ruling of *Amoco Production Co. v. Southern Ute Indian Tribe*, 526 U.S. 865 (1999) which ultimately determined that CBM was not reserved with the coal estate on federal lands.

Similar cases have occurred in other states as well. In Pennsylvania, *U.S. Steel Corp. v. Hoge* determined that the coal estate includes the gas, as hydrofracturing for CBM recovery would render the coal seam unmineable. In Alabama, CBM rights are also held by the coal owner as decided in *Rayburn v. USX Corp.* and *NCNB Texas*

see CMM OWNERSHIP, page 7

Summary Table of CBM/CMM Ownership			
State	Coal Lessee	Gas Lessee	Comment
Alabama	✓		
Illinois	✓		In coal seam or mine void only
Federal Lands		✓	
Kentucky		✓	
Montana	✓		
Pennsylvania	✓		
Virginia		✓	
West Virginia			Ownership is decided on a case specific basis considering language of deed and original intent of parties
Wyoming		✓	

One issue that Methane to Markets Coal Subcommittee members have identified as a critical obstacle to project investment and development is uncertainty about CMM ownership in various partner countries, including the United States. Without a clear understanding of who owns CMM and how the rights to its profitable utilization can be obtained, projects may be viewed as too risky to gain support from the investor community. In response, CMOP is developing a draft White Paper intended to provide an overview of CMM ownership issues in Partner countries. The final version of the White Paper will be posted on the M2M and CMOP Web sites (<http://www.methanetomarkets.org> and <http://www.epa.gov/coalbed>, respectively).



## Coal Companies Hope to Receive Carbon Credits for Methane Reductions

**M**ethane is a major greenhouse gas (GHG), second in global impact only to carbon dioxide. Underground coal mining is one of the largest sources of methane emissions in the U.S. Each year, underground coal mining in the U.S. liberates 2.4 million tonnes of coal mine methane (CMM). Of that, less than 30% is recovered and used (U.S.EPA, 2007b). The global benefit of CMM reductions can be equated to reductions of carbon dioxide from sources such as automobiles. For example, every thousand tonnes of CMM emissions eliminated each year is equivalent to 21,000 tonnes of CO<sub>2</sub>, or to the removal of 4,600 automobiles from the road.

One of the barriers to CMM recovery and utilization project development is cost. Drainage, collection, and utilization systems are complex and expensive to install. Two coal mines have improved the cost equation, however, by signing on to earn money for CMM emissions they are keeping out of the atmosphere. Jim Walter Resources and PinnOak Resources have joined a voluntary greenhouse gas reduction trading program to turn their avoided emissions into carbon credits. The example they set may encourage other coal mining companies to follow suit – and may bring new projects on line that would otherwise have not gone forward.

### Turning Avoided Emissions into Revenue

Jim Walter Resources (JWR), through Black Warrior Methane (BWM), has been collecting CMM in advance of underground operations since 1983. The original intent was to degas the Blue Creek Coal mine sufficiently to allow underground mining without requiring a massive (and economically undesirable) conventional ventilation effort. It was quickly discovered that in addition to accomplishing this task, BWM's operations could produce a market quality product in the form of virtually pure methane gas.

Today, JWR is one of the leaders in CMM drainage in the U.S. and around the world. According to EPA data, the company sells an average of 27 million cubic feet per day of pipeline quality gas from three mines, preventing 5.5

million metric tons of CO<sub>2</sub> equivalent (MMTCO<sub>2</sub>e) from being emitted into the atmosphere each year (U.S.EPA, 2007a).

Besides the benefit of increased mine safety, the positive economic effects of successful degassing on the mining operations are:

- ▶ Greatly reduced delays on the face
- ▶ More widely spaced ventilating shafts and fans
- ▶ Lower fan horsepower
- ▶ Smaller and cheaper ventilation constructions underground

In an interview with Chuck Dixon, Vice President of Engineering at JWR (retired), published in the Fall 2006 *CBM Extra*, Dixon said that “the people at Jim Walter consider themselves business people that happen to be mining coal.” JWR used its business acumen to turn a necessary cost item to the Mining Division into a successful profit center. JWR applied this same can-do attitude towards turning a potent GHG to an environmental and financial asset. As a first step, in December 2006, JWR joined the Chicago Climate Exchange (CCX). As a leading producer and exporter of metallurgical coal, steam coal, furnace and foundry coke, and other coal-based products, JWR was the first coal company to join CCX.

With the Sloss Coke Plant as part of its corporate family, JWR is an emitting company with an emission reduction requirement. Even with the reduction commitment and given the restrictions above, JWR recognized a viable business opportunity and joined CCX, concluding that the economics of producing methane reductions eligible for CCX offsets are attractive.

PinnOak became the second coal company member of CCX and is currently implementing methane reduction practices at least two of its properties. PinnOak Resources is an entrepreneurial coal mining and energy resources group with annual production capacity in excess

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of 7 million tons of high quality, low volatile metallurgical coal.

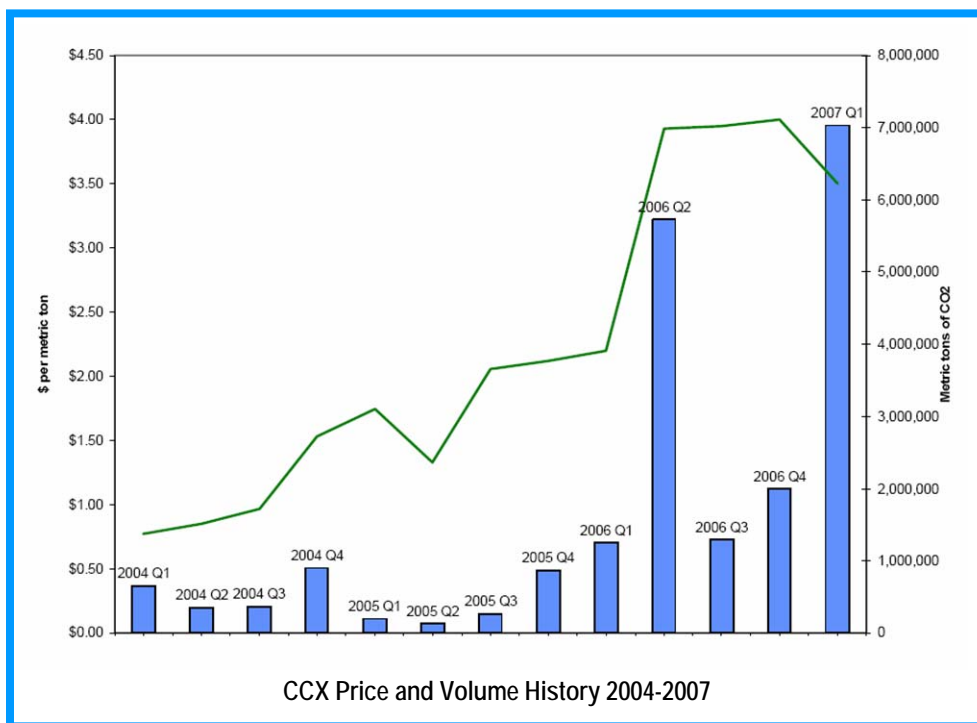
### Selling GHG Emissions

The trading program of which Jim Walter Resources and PinnOak Resources have become members is the Chicago Climate Exchange (CCX), North America's only voluntary, legally binding greenhouse gas reduction and trading program for emission sources and offset projects. CCX members who emit GHGs make a voluntary but binding commitment to reduce their emissions by 6% against an established baseline from 2007 through 2010. Any member company that is able to reduce its emissions further than the required level may sell its surplus as allowances to other member companies that miss their targets or to financial institutions that trade carbon credits on the CCX or bank the allowances for future trading. Carbon credits can also be earned through direct offset projects, such as methane collection from landfills, farm livestock waste, and coal mines. Typically, offset providers generate few if any direct emissions yet provide a source for carbon credits.

CCX is not the only game in town. In today's market, U.S. coal companies that want to commoditize their CMM emission reductions do not have to look far for other options. For example, at least five carbon trading companies will attend, sponsor, or speak at EPA's upcoming U.S. CMM Conference in St. Louis, Missouri. GE/AES GHG Services, Ecosecurities, Camco International, 3 Phases Energy, and Blue Source are all competing to find active and abandoned coal mines that can host a methane reduction project - and create avoided emissions. Even traditional energy companies such as DTE Energy are becoming major market players.

Of course, several hurdles must be overcome before a CMM reduction project can be successfully registered as an offset. First, a coal mine must demonstrate clear gas

ownership rights and environmental regulations compliance. Second, a coal mine must carefully calculate the amount of emissions it has prevented from entering the atmosphere by using an approved offsets methodology. Some traders keep their methodology confidential while others – such as GE/AES – publish their version for public consumption. Still others use a third party methodology like the one being prepared by EPA's Climate Leaders, an industry-government voluntary partnership that works with companies to develop long-term comprehensive climate change strategies for its members. Finally, protocol dictates that a third party must verify these calculations as sound and accurate.



### Conclusion

Since the CCX opened, both price and volume have been steadily increasing, as illustrated in the figure above. It is likely that as carbon credits become more actively traded on commodity exchanges in the near future, the value of those credits will continue to increase. This could serve as an added incentive for coal mines to develop more CMM recovery and utilization projects in the future. This could also provide an additional revenue stream for

## What do you want to know about?

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otherwise marginally profitable projects. Ultimately, this development – along with many others - will contribute towards a reduction in GHG emissions. 🌱

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- U.S.EPA (2007b): Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2005. EPA 430-R-07-002, April.

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## CMM Ownership from page 4

*National Bank, N.A. v. West.* In both Kentucky and Virginia, legal precedent dictates that the coal rights are only for the coal, with no rights to CBM. In Illinois, CBM in coal seams or mine voids is controlled by the coal estate (Flanery, 2007). In Montana, *Carbon County v. Union Reserve Coal Co.* determined the oil and gas owner had the right to recover CBM yet the coal owner had rights to extract and capture gas incident to safety obligations in actual mining.

The Circuit Court of McDowell County, West Virginia determined in *Energy Development Corporation v. Moss et al.*, Civil Action No. 98-C-173 (W. Va. Cir. June 19, 2002) that a conventional oil and gas lease, such as the ones at issue, containing the phrase all oil and gas, with nothing further, does not grant a lessee the right to extract coalbed methane from the lessors' coal seams. The court determined that the intent of the parties at the time the leases were signed governed the interpretation of the leases.

### Surface / Subsurface

In instances where surface ownership is private and subsurface mineral rights are leased or owned separately, a number of states have enacted surface owner protection or damage compensation laws. These laws vary from notification requirements, as in Wyoming, where oil and gas operators must provide surface owners with 5 days notice prior to staking or surveying and 30 days notice prior to

commencing operations; to other laws requiring compensation for any damages or lost agricultural production value on surface lands. In Alaska, Illinois, Montana, Oklahoma, Pennsylvania, and Wyoming, the law requires surface owners and mineral operators to develop an agreement between them to provide for all damages. In Tennessee, the surface owner must notify the mineral operator of damages within three years of the damage, such as lost income or market value of crops destroyed, and may bring an action in court to determine compensation. South Dakota law is similar; however, the time period is two years for notification and compensation is determined based on a formula mutually decided upon by involved parties. North Dakota also requires the mineral developer and surface owner to agree on compensation terms; however, if the surface owner rejects the developers offer, the surface owner may take the developer to court (OGAP, 2005).

## Conclusion

As unconventional energy resources become more attractive, ownership issues between the various estates involved with CMM and CBM will increase. In the absence of a federal stance on the ownership of CMM, resolutions such as the establishment of CAZs in the PRB and the KRCRA in Colorado, legally tested cases within each state, and private resolutions between coal mines and gas developers will be necessary to address this barrier to CMM project development. Countries with disruptive ownership con-

*see CMM OWNERSHIP, page 10*





## CBM/CMM News

**NDRC Approves the First CBM Commercial Development Passport** --- *Panzhuang CBM cooperative project is approved to enter the initial stage of commercial development.*

On July 11, 2007, the China National Development and Reform Commission (NDRC) notified China United Coalbed Methane Corporation, Ltd's (CUCBM) and Asian American Gas, Inc. (AAGI, the parent company of Sino-American Energy Inc.) that the Coalbed Methane Resources Development Plan in Panzhuang, Jincheng Shanxi province is in line with China's policies governing the CBM industry and is listed in the national Eleventh Five-Year Plan. NDRC also approved the initial stage of the Panzhuang CBM Resources Development Plan, with an annual capacity of 500 million cubic meters. AAGI is the first foreign company to obtain NDRC's approval for CBM commercial development in the last twenty years. Previous output for the six gas wells reached 300,000 m<sup>3</sup>/day, and the highest gas output for a single well reached 70,000 m<sup>3</sup>/day. Sino-American Energy Inc. and its Chinese partners are now preparing for the initial stage of CBM commercial development in Panzhuang. For more information, the full press release is available on the AAGI website <http://www.asianamericangas.com/web/news.asp?lang=E&id=68&pid=283>

**Caterpillar Generator Sets Selected to Support Additional Coal Methane Projects in Shanxi, China**

The Sihe Coal Mine in Jincheng city, Shanxi Province, China, is the site of the world's largest coal meth-

ane power plant. When fully operational the project will employ 60 Caterpillar methane-gas-powered generator sets to create 120 megawatts of power. Following the success of this project, Caterpillar has been selected to provide an additional 31 methane-gas-powered generator sets to produce 54 megawatts of power at the Cheng Zhuang and Mei Gan Shi coal mines in the same city in Shanxi Province. The 3500 series generators used in these projects are produced at Caterpillar's Large Engine Center in Lafayette, Indiana.

The Shanxi Jincheng Anthracite Coal Mining Group Co., Ltd. is the project developer for all three coal methane power plants. Caterpillar will work closely with its dealer WesTrac China Limited on product commissioning and ongoing support for these projects. Methane gas found in coal seams can be highly volatile and it is a major cause of underground explosions. Historically the CMM has been vented into the atmosphere. By capturing the previously vented methane gas and converting it into electricity, the Caterpillar generator sets will significantly reduce greenhouse gas emissions, improve mine safety and increase the capacity of the local power grid.

More information is available at:

<http://www.cat.com/cda/components/fullArticle?m=8703&x=7&id=598832>

**China Launches Largest Coalbed Methane Liquefying Project**

China has launched a coalbed methane liquefaction project that boasts the country's largest daily production capacity. The project, based in Qinshui Basin, North China's Shanxi Province, is expected to produce one million cubic meters of liq-

uefied coalbed methane daily when put into operation next January, said a manager of China United Coalbed Methane Corp Ltd (CUCBM), the developer of the project. The production lines will be completed at the end of this year. The annual output is expected to reach 150,000 tons and the annual sales may hit 200 million cubic meters, the manager said. The CUCBM manager said that Hong Kong-listed China Leason Investment Group Co Ltd signed a liquefied coalbed methane purchasing contract with the company in Beijing earlier this month. Coal mine methane is usually removed during mining in order to avoid gas explosion accidents. A proper use of the gas would not only make the best use of resources, but also help reduce greenhouse gas emissions. CUCBM, held by China National Petroleum Corporation and China National Coal Group Corp, is the only company entitled to cooperate with foreign companies to exploit coalbed methane resources. Its coalbed methane drills make up to 85 percent of the nation's total. It has signed 21 production sharing contracts with 10 overseas companies, with a total foreign investment of US\$119 million. For more information, see the *China Daily* - August 12, 2007

[http://www.chinadaily.com.cn/bizchina/2007-08/12/content\\_6022821.htm](http://www.chinadaily.com.cn/bizchina/2007-08/12/content_6022821.htm)

**India Proclaims First Coalbed Methane Sale**

Great Eastern Energy Corp., a London-based company involved in the exploration, development and production of coal bed methane (CBM), said it has made India's first sale of CBM. The sale is for both industrial use and compressed natural gas for vehicles in Asansol, West Bengal, 125 miles northwest of Cal-





cutta. The company said it is receiving \$13-15/Mcf for the gas.

Great Eastern has drilled 23 production wells and plans to drill 80 more in phases over 3 years. It holds a CBM license on 210 sq km in the Raniganj coal field in West Bengal, where consulting engineers estimated original gas in place at 1.92 trillion cubic feet (Tcf). For more information, go to <http://www.newswire.ca/en/releases/archive/July2007/16/c6636.html>

#### **Cathay Oil & Gas Ltd. Acquires Rights to Pakistan Coal/Coalbed Methane and will Participate in Joint Countrywide Natural Resource Exploration Project**

Cathay Oil & Gas Ltd. has acquired the exclusive rights to coal bed methane and groundwater in the Pakistan province of Sindh, estimated at up to 21 Tcf of recoverable natural gas. In addition, Cathay Oil and Gas Ltd is part of a consortium of entities including Pakistan and U.S. Government organizations and academic groups that will conduct a multi-year countrywide aerial and land based exploration program. Pending funding, Cathay will have the right to develop additional natural resource discoveries including coal, coal bed methane, oil, and minerals. Cathay is currently in advanced discussions with potential funders. Cathay has signed a six year exclusive right to explore for and develop the coal and associated coalbed methane (CBM) and water resources in the province of Sindh. With this contract, Cathay controls one of the largest known coal resources in the world containing over 10% of the world's total coal reserves, more than 175 billion tons as defined by the USGS. The Thar coals are known to be the western extension of the coals in the Cambay Basin

in India, which have reserves of some 13 Tcf of coalbed methane gas. Cathay's area of interest covers some 135,000 square kilometers (roughly 50,000 square miles). The USGS has estimated that the Thar coal field, roughly 20% of Cathay's license, is comparable to the Powder River Basin of the western United States, and may contain up to 36 Tcf of coalbed methane with up to 21 Tcf potentially recoverable. Unlike China, where foreign companies must partner with the state-owned China United Coal Bed Methane on a 60% company / 40% CUCBM ratio, under the unified jurisdiction in Pakistan, Cathay owns 100% of the rights and has no requirement to production share with any company. Cathay has also negotiated regulations and royalty agreements for CBM with the Sindh Government. For more information, see Cathay Oil & Gas Ltd. (press release) – August 8, 2007

<http://www.marketwire.com/mw/release.do?id=758815>

#### **Gazprom Successfully Completes CBM Pilot Study in Kuzbass**

In early June 2007, Gazprom – Russia's biggest company and the world's largest natural gas producer – announced the successful completion of a pilot coalbed methane (CBM) production project in the Taldinskaya area of Kuzbass Basin. The project, located in the Kemerovo Oblast, aims to provide a reliable gas supply to the Kuzbass region while improving safety at coal mines. The availability of gas in the area will also assist in reducing the ecological footprint of the industrial region. The first phase of the project included engineering design and infrastructure development. Pilot wells were constructed, and they are currently in operation. During 2007-2008 the project participants plan to implement a sec-

ond phase of the project, which will focus on addressing the lack of a regulatory framework for CBM production. Gazprom plans to begin supplying gas to customers in the second half of 2009.

Gazprom and the Kemerovo Oblast Administration inked the agreement for the CBM production project in May 2003. The Kuzbass basin is favorable to CBM development because of its well-developed infrastructure and proximity to the Kemerovo Oblast's large industrial centers. Gazprom estimates CBM reserves in Russia of 49 trillion cubic meters (Tcm) with 13 Tcm located in the Kuzbass region. In the first quarter of 2007 Gazprom and Siberian Coal Energy Company (SUEK) announced their intention to combine their electricity and coal operations. If successful, the merger would combine Russia's largest gas producer with the country's largest coal producer. SUEK produces about 30 percent of domestic coal and about 20 percent of exported coal for power generation. See the Gazprom press release for more information:

<http://www.gazprom.com/eng/news/2007/07/24659.shtml>

#### **New Company Develops Methodology for CMM Projects**

On July 25, 2007, GE AES Greenhouse Gas Services, LLC (GGS) – a new joint venture company formed between AES and GE Financial Services – published a methodology to provide guidance in calculating emission reductions from the capture and destruction of coal mine methane (CMM). GGS will use the methodology to create methane emission reductions through investment in projects and to participate in emission



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ditions can learn from others who have found success. Initiatives such as the Methane to Markets Partnership provide an ideal forum for the transfer of knowledge and experience. 🗨️

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credit transactions within a market that it is helping to create. A GGS standard of practice was also published to lay out the rules for creating, verifying, marketing, and auditing the entire process.

The methodology references international standards including: ISO14064-2: 2006 GHG Project Standard; UNFCCC consolidated methodologies for coal mine methane ACM0008 v.3; WRI/WBSCD GHG Projects Protocol; and the IPCC Guidelines for National Greenhouse Gas Inventories. GGS's standards address issues that are unique to the U.S. economy and standards of practice while maintaining the rigor of the international standards. The GGS methodologies incorporate guidelines for determining baseline emissions, and stringent monitoring protocols for metering and measuring flow that conform to commonly accepted standards developed by third parties such as the Society of Mechanical Engineers (SME) and the American Petroleum Institute (API).

The President of GGS will present on this topic at EPA's U.S. CMM Conference taking place in St. Louis, Mis-

souri, from September 25-27, 2007. You can access more conference information on our website:

[http://www.epa.gov/cmop/cmm\\_conference.html](http://www.epa.gov/cmop/cmm_conference.html).

## BP Formalizes Plans To Explore For Coalbed Methane

The coalbed methane exploration that British Petroleum has talked about undertaking in southeastern British Columbia, to the alarm of some Montana officials, is now a formal proposal. British Petroleum has asked the provincial government to grant a permit for exploration in the British Columbia side of the Flathead River basin and in the province's Elk River drainage. The transboundary Flathead River system extends into Montana, and a fork of the system serves as Glacier National Park's western boundary. Montana officials have expressed concern that coal-bed methane work north of the border could lead to environmental harm, particularly to a stateside area valued for its recreational opportunities and for wildlife that include endangered or threatened species, including grizzly bears, lynx and bull trout. Sen. Max Baucus, D-Mont., recently called on BP to halt plans for coal-bed methane work north of the border. For more information, see: *Associated Press* – August 9, 2007

<http://www.kxmb.com/News/151371.asp> 🗨️



## Upcoming CBM/CMM Events

### Coal Marketing Days

20-21 September 2007  
Omni William Penn Hotel  
Pittsburgh, PA  
Contact: James Gillies  
Phone: 781-860-6110  
Email: [james\\_gillies@platts.com](mailto:james_gillies@platts.com)

### USEPA Coalbed Methane Outreach Program – U.S. Coal Mine Methane Conference

25-27 September 2007  
Millennium Hotel  
St. Louis, MO  
Contact: Mr. Jim Marshall  
Email: [jmarshall@ravenridge.com](mailto:jmarshall@ravenridge.com)  
Website: <http://www.epa.gov/coalbed>

### 2007 Rocky Mountain Unconventional Gas Conf.

10-12 October 2007  
South Dakota School of Mines and Technology  
Rapid City, SD  
Phone: 605-394-2693  
Website: <http://www.sdsmt.edu/learn/professional>

### Commonwealth of Virginia Energy & Sustainability (COVES) Conference

16-18 October, 2007  
Virginia Military Institute  
Lexington, VA  
Phone: 540-464-7740  
Email: [bangja@vmi.edu](mailto:bangja@vmi.edu)  
Website: <http://www.energyvacon.org/>

### Methane to Markets Partnership Expo

30 October – 1 November 2007  
China World Hotel  
Beijing, China  
Website: <http://www.methanetomarkets.org/expo>

### North American Coalbed Methane Forum

30-31 October, 2007  
Lakeview Resort  
Morgantown, West Virginia  
Email: [khaminian@mail.wvu.edu](mailto:khaminian@mail.wvu.edu)

### China Coal & Mining Expo 2007

6–9 November, 2007  
National Agricultural Exhibition Hall  
Beijing, China  
Phone: 852-2881-5889  
Website: <http://www.chinaminingcoal.com/2007/index.php>

### 9<sup>th</sup> Annual Unconventional Gas Conference

14-16 November 2007  
Telus Convention Center  
Calgary, Alberta  
Phone: 403-770-2698  
Email: [conference@emc2events.com](mailto:conference@emc2events.com)  
Website: <http://www.csugconference.ca/>

### Managing the Social and Environmental Consequences of Coal Mining in India: 1<sup>st</sup> International Conference

19-21 November 2007  
New Delhi, India  
Phone: +91 326 2206372  
Email: [s\\_gurdeep2001@yahoo.com](mailto:s_gurdeep2001@yahoo.com)  
Website: <http://www.mining.unsw.edu.au/>

### 2008 AAPG Annual Convention

20-23 April 2008  
San Antonio, Texas,  
Call for Abstracts Deadline: September 27, 2007  
Program themes include Hydrocarbons from Shale & Coal  
Website: <http://www.aapg.org/sanantonio/>

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[www.epa.gov/cmop/experts/update.html](http://www.epa.gov/cmop/experts/update.html) to sign-up now!